Macquarie ICT Innovations Centre

ANNUAL REPORT 2014-15

MacICT
Macquarie ICT Innovations Centre

NSW GOVERNMENT Education & Communities
Public Schools NSW

MACQUARIE UNIVERSITY

Prepared by Cathie Howe & Lyrian McGregor


Our Vision
Exploring and realising the potential of emerging information and communication technologies to transform learning and teaching within a dynamic research community.

OUTLINE

Located in NSW, MacICT provides statewide services to both government and non-government Schools on the role of information and communication technologies in teaching and learning.

Macquarie ICT Innovations Centre (MacICT) is a collaboration between the NSW Department of Education and Communities and Macquarie University. We have a project-based approach to working with K-12 teachers and their students. MacICT develops comprehensive teacher professional learning and support programs where MacICT staff, academic research partners from Macquarie University and school teachers collaboratively develop projects that utilise the most innovative, emerging technologies to address syllabus outcomes while meeting the individual needs of all K-12 teachers and their students, ensuring that our services remain relevant to all schools and contemporary by nature. MacICT is able to connect and collaborate with educational institutions and industry partners to inform the education community and provide significant research insights into the capacity of new technologies to enhance teaching and learning.

At MacICT we believe that learning how to use technology is not enough; the heart of 21st century learning is about becoming a proficient and independent lifelong learner. Our activities promote this through an inquiry-based approach to learning where students are encouraged to collaborate and be creative in solving open ended challenges.

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HISTORY

2001

Macquarie ICT Innovations Centre grew out of a commitment to form a strategic partnership between Macquarie University and the Department of Education and Training to enhance public education. The partnership aimed to promote innovation in the enhancement of teaching and learning through the use of ICT, positioning both organisations as dynamic leaders in improving student learning outcomes and professional development of staff. A white paper was commissioned, advisory committee established, dedicated building and key resources identified and two Directors appointed.

2002 - 2005

The first Memorandum of Understanding lasting four years was signed on 22nd November, 2002 by Honourable John Watkins, MP Minister for Education and Emeritus Professor Di Yerbury Vice Chancellor Macquarie University. The Centre was managed by two Directors (SE02), and included a staff consisting of a administration assistant (Clerk 1/2) and the equivalent of 3.5 deployed teachers. The Centre's mission was to 'develop, implement and evaluate innovative ways of enhancing learning through the application of dynamic and emerging information and communication technologies.'

Between 2003 to 2005, over 21,000 students attended the Centre, and 1160 teachers accessed the Centre programs with their classes. During 2005, 869 teachers accessed the Centre's professional learning programs such as Teachers e-academy, whole school professional learning days and one day workshops.

2006 - 2011

On the 12th September 2006, Andrew Cappie-Wood Director-General of Education and Training Managing Director of TAFE NSW formalised a continuation of the collaborative initiative with Professor John Loxton Deputy Vice Chancellor (Academic) Macquarie University until September 2009. During this time, MacICT focussed on achieving best practice through leadership in 'teaching and learning using ICT', 'professional preparation of professional learning', 'supporting teachers in curriculum development' and 'delivery and research to enhance teaching, student learning and innovation with ICT'.

In 2006, MacICT's Reference group was formed and throughout this time period, a number of relationships were developed with industry and government agencies such as the Australian Centre for Astrobiology. One day workshops covering a variety of areas such as video texts, robotics, stop animation, social networking, wikis in the classroom and more were conducted.

From 2008, MacICT's professional learning services took a new direction focusing on a more project based approach where teachers and their students participated in long term projects. These included: Interactive classrooms, eMints, games based learning, virtual worlds, connected classrooms, robotics, students as game designers, visual literacy and numeracy, students as learning designers, technology leaders and more.

MacICT organised and held the first week long video conference festival, 'Thinking Globally, Delivering Locally' featuring a wide variety of presenters. Several showcases were held including a student led, 'Students as Designers' showcase featuring student designed digital games and learning sequences. Bajo and Hex from ABC's Good Game presented, played student's video games and chatted to students. Sam Doust, the Creative Director Strategic Development at ABC Innovation also presented on alternative reality dramas and games. Case studies and academic research were conducted in areas including: the use of mobile devices to support student's as they frame their own scientific inquiries into

their local environment, virtual worlds in education, students as game designers and robotics in education. Several papers were published from this research (www.macict.edu.au/research/centre-papers).

During 2010, one Director (PEO2) of MacICT was appointed. Throughout 2010-2011 MacICT ran some ground breaking projects gaining global attention. Two of the project leaders received awards for their work. Projects included Virtual Worlds: When2050, Game2Design, Robotics, LAMs in Teaching and Learning, Local Ecostudy Project , Operation Innovate and Professional Learning. During 2011, MacICT held a number of special events featuring renowned academics. These included, 'Playing with Learning Spaces': Professor Stephen Heppell, 'MacICT Robotics Day': Dr Eric Wang, 'Nanotechnology and Diamond': Prof James Rabeau, Physics Video Conference with Sir Anthony James Leggett (Nobel Prize in Physics), 3DEDRATS: a month long celebration of innovation and creativity in Australian contemporary education (www.3dedrats.wordpress.com). It was during this time that the state handed responsibility and funding of MacICT to the DEC Northern Sydney Region.

2012

A restructuring in the Department of Education and Communities led to changes within MacICT resulting in a significant reduction in staff and operating budget, and a move to a partially self funded model. A new Manager (SEO2) and an Office Administrator was appointed. New branding and a new website was developed and launched during 2012. MacICT was recognised by NSWDEC as a state-wide resource with teachers across NSW from both government and non-government schools accessing it services. MacICT forged new collaborations with organisations including LEGO Education, FIRST Australia, Alternator and buildAR. The opportunity to work with experts honed the development of workshops and provided opportunities for teachers to work with globally recognised experts. During 2012 alone, 2538 students, 229 unique teachers and 141 unique schools accessed MacICT's services. MacICT conducted two innovative case studies, *iPads in the Year 1 Classroom: Working Mathematically* and *Augmenting Reality: Students as e-Design Artists*.

2013

During 2013, MacICT's team doubled from five in 2012 to a team of 10 in 2013. In addition to the Centre Manager and Office Manager, the team was made up of casual teachers, retired teachers, doctoral and undergraduate students. MacICT maintained its strong collaboration with LEGO Education and forged a new collaboration with BRIDGES to Higher Education. We were also involved in Macquarie University's PACE program. In a joint effort, MacICT and Macquarie University were awarded our first CS4HS Google grant which led to the development of a two day course titled *Bringing Computing to Life: raising the bar in teaching computing*. During 2013, 509 unique teachers from 301 schools attended professional learning courses. MacICT conducted 93 boot camps attended by 3190 students from 54 schools. MacICT's reach increased dramatically with teachers and educators from across NSW attended events and courses. MacICT received a $200,000 grant from NSWDEC to run an academic research project titled, *Researching Connected Communities 21* involving over 100 teachers from 17 schools. In addition to this research project, MacICT began work on a second research project *Transmedia Storytelling: Weaving a Storyworld Web*.

THE TEAM

Cathie Howe [Centre Manager]

Cathie is a Professional Learning & Leadership Coordinator for the NSW Department of Education and manager of MacICT. As well as developing and delivering Professional Learning, Cathie is the creative and strategic leader of an expanding, collaborative team responsible for the design and quality of MacICT's services. She oversees all course development and mentors many of the team members to ensure that MacICT continues to provide a consistently high level of service to schools, teachers and students.

Cathie manages, and is involved in the development of all of MacICT's case studies and academic research projects. She is passionate about inspiring and empowering teachers to transform their practice by understanding what they have to teach (curriculum), how they are going to teach it (pedagogy), integrating digital tools in creative ways to enable meaningful learning to occur and designing appropriate spaces for learning.

During her 20+ years both as a teacher and an executive in Primary Schools, Cathie has been recognised for her innovative practice, digital learning design and leadership.

Lyrian McGregor [Office Manager]

Lyrian is a Clerk 1/2 for the NSW Department of Education, providing support to the MacICT Team and is the first point of call for all inquiries and visitors. She is responsible for bookings, course administration, finance and event management. She assists the team as needed with any course administration, technical assistance, eqipment or logistics. Lyrian is also responsible for all MacICT's marketing, social media and web presence. On occasion she will assist on case studies and projects as needed to provide solutions for schools' needs. She has built websites for courses and projects including MacICT's Online Course Portal.

MacICT relies on a passionate team of largely casual teachers with a variety of expertise who develop and facilitate Professional Learning Services for schools, teachers and students.

John Burfoot

[Developer & Facilitator]

A former teacher with the Catholic Education Office, John has been developing MacICT's popular robotics programs since 2011. He has also developed 'maker space' workshops working with electronics and recyclable materials to foster design skills and creativity in education.

Dr Sarah Boyd

[Developer & Facilitator]

Sarah is a software programmer and Electrical Engineer with a PhD in Computer Science from Macquarie University. She has retrained as a Computing & Mathematics teacher and began working with MacICT in 2014, combining her engineering background with a love of teaching.

Daniel Green

[Developer & Facilitator]

Daniel is an artist, educator and broadcaster working as a Secondary Visual Arts teacher. He has taught digital media production, introductory electronics and game design. Recently, Daniel was a Co-ordinator of the Sydney Mini Maker Faire at the Powerhouse Museum. He joined the MacICT team in 2014.

Karolina Novak

[Developer & Facilitator]

Karolina is an artist and educator with professional interests in hands-on and cross-curricular learning. She has a Master of Fine Arts in Printmaking from UNSW and a Master of Teaching from Sydney University. Karolina is currently teaching high school English, Visual Arts and Technology.

Evan Bonser

[Developer & Facilitator]

Evan began his university training in robotics before changing to complete a Bachelor of Education (Primary) from the University of Western Sydney. He has taught in a variety of educational environments - both public and private sectors, Special Needs and Hospital Schools from K-12.

Annika Lyttle

[Facilitator]

With a career spanning chartered accounting, business analysis & planning, and teaching, Annika deeply appreciates the need for students to be both creative & adaptive. She has Bachelor of Economics from Macquarie University and a Masters of Teaching (Primary) from UNE.

Nerida McCredie

[Researcher & Facilitator]

During her 13 years of classroom teaching at St Ives North Public School, Sydney, Australia, Nerida has been recognised for her work in digital learning and awarded for her innovative classroom practice. Nerida now works as an educational adviser, trainer and keynote presenter.

Michael Stevenson

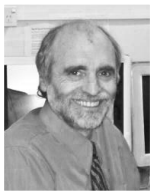
[Researcher, Developer & Facilitator]

Michael is a doctoral student at Macquarie University. As an educator with nearly a decade of experience in the secondary classroom alongside a growing list of publications, he bridges the gap between research & practice with an ongoing commitment to professional learning.

David Grover

[Facilitator]

David held the position of Head Teacher of Computing at Chatswood High School for many years, is an experienced presenter and lead author of the Pearson/Cengage text for Information and Software Technology. David is presently adjunct Lecturer in the School of Education at Macquarie University.



Kylie Jackson

[Facilitator]

Kylie began working with MacICT as a student workshop facilitator in 2013. She is currently a pre-service teacher studying a Bachelor of Education (Primary) at Macquarie University. She is also Early Childhood trained and holds a Diploma in Children's Services.

Jan Eade

[Developer & Facilitator]

Jan Eade has been involved with MacICT since 2003 when she was deployed to the Centre for a term. On retiring in 2008, having worked in schools as a classroom teacher, STLA and teacher-librarian, Jan re-joined MacICT to investigate iPads in education & mentor other team members.

Neville Fraser

[Developer & Facilitator]

Runner-up to the 2014 Prime Minister's Award for Primary Science Teaching, Neville has over two decades experience using ICT in education. He has been a director of the NSW Computer Education Group & brings a wealth of knowledge and experience to blending science teaching with ICT.

Wayne Chaffey

[Facilitator]

A science educator for almost four decades, Wayne commenced teaching at James Ruse Agricultural High and retired from Moree Secondary College. He has taught Science in a range of schools and provided professional learning for teachers from K-12, mostly in regional NSW.

Khyiah Angel

[Researcher, Developer & Facilitator]

Khyiah is both a PhD candidate in the Department of Media and a sessional academic in the School of Education at Macquarie University. She has 15 years experience across primary and high school settings. Khyiah also has a Master's degree in Creative Writing.

Vivian Leung

[Facilitator]

Vivian has been studying education and psychology at Macquarie University and working at MacICT since 2014. She has a keen interest in enhancing learning with technology and her role as a casual robotics facilitator has allowed her to share her passion by making technology accessible to students.

PROMOTING INNOVATION

Promoting Ideas and Philosophies on 21st Century Learning

Social Media & Online Communities

MacICT uses a variety of social media platforms to promote activities, engage educators in discussion on innovative practice, share resources and support our professional learning services. Online communities are formed as part of our workshops and projects to create professional learning networks, provide resources, support and sharing. A **new** mailing list system was lauched in 2015 that will enable MacICT to better manage, track and engage clients with professional standard newsletters and updates.

470

MEMBERS OF MACICT'S
GOOGLE+ COMMUNITIES

1283

TWITTER FOLLOWERS
60% INCREASE SINCE 2013

3170

SLIDESHARE VIEWS 2014-15
12 PRESENTATIONS

LEARNING PLATFORM FOR TEACHER AND STUDENT WORKSHOPS

HOUSES RESOURCES, PROMOTES SHARING & CONVERSTAIONS

NEW

3536

SUBSCRIBERS
TO MACICT'S MAILING LIST

NEW

NSW DEC PRIVATE SOCIAL MEDIA PLATFORM FOR EMPLOYEES

PROMOTE ACTIVITIES, PROVIDE SUPPORT TO TEACHERS, CONVERSATIONS

GREAT TEACHING, INSPIRED LEARNING

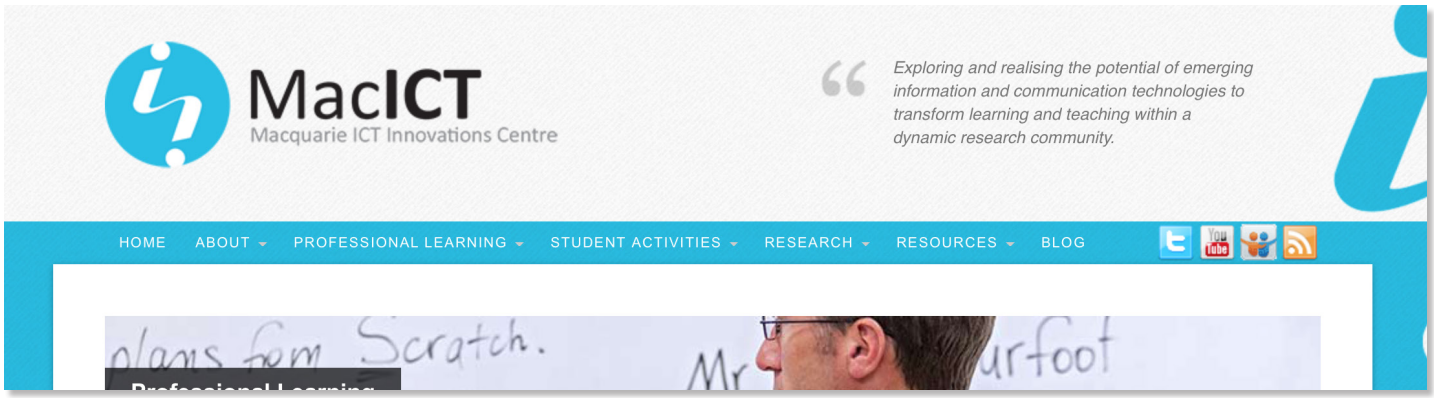
Recognise and share outstanding practice and initial teacher education.

STATE NSWDEC PLAN

Goal 15 Improve the Quality of All Teaching

MACICT PRIORITY

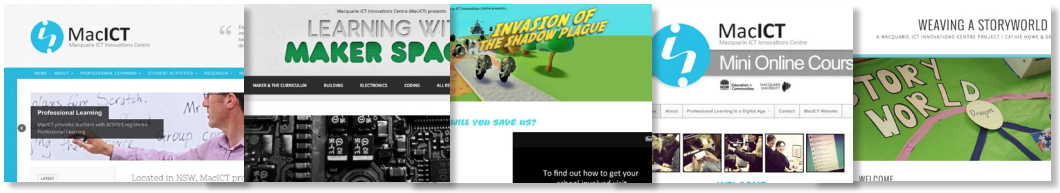
Promote Innovation



Websites & Blog

The MacICT website provides information about MacICT's professional learning services, student excursions, academic research projects, case studies, resources and more. The blog contains articles by staff on a variety of subjects related to our services. Other MacICT websites include online course portals, resource websites and project report sites.

www.macict.edu.au



Articles, Reports and Academic Publications

Cathie Howe "Robotics in Education", **Voyeur (Virgin Australia In Flight Magazine)** for Alex Kidman, August 2014

Sarah Boyd "Getting Girls Into Coding" **Educational Technology Solutions Magazine**, 27 May 2015

Nerida McCredie, Cathie Howe "Weaving a StoryWorld Web" 2015. Sydney: **Macquarie ICT Innovations Centre**

Stevenson, M, Hedberg, J.G., O'Sullivan, K & Howe, C. (2014). "Leading Learning in a Digital Age," **Professional Development in Education** [in press].

Stevenson, M., Howe, C., & Hedberg, J. G. (2014). "Researching Connected Communities 21". Sydney: **Macquarie ICT Innovations Centre**

Presentations and Contributions to Special Events, Conferences and more

The MacICT team has been recognised for its expertise, expert knowledge and contribution to teaching and learning by industry and has been invited to present, speak and contsibute to a variety of speical events.

Cathie Howe, **Computer Science Google Outreach Partner Summit**, Supporting Computer Science in Schools, (Special Invitation), November 2014

Cathie Howe, "Innovative Practice at MacICT", **NSW DEC Ed Services Leadership Conference**, October 2014

Cathie Howe, "Teaching in the 21st Century", **Early Careers Teacher Conference**, September 2015

Cathie Howe "Innovation, Technology and Education" for delegation of **educational leaders completing a PhD from Auburn University**, Alabama, USA

Cathie Howe "Innovative Practice", **Teachers in Front Summit: Breaking Through**, August 2014

John Burfoot "Robotics Workshop", **FIRST Robotics Challenge Australian Trials**, March 2015

Cathie Howe, Nerida McCredie "Transmedia Storytelling for Education", **ClassTECH Conference**, March 2015

Cathie Howe , "Creative Integration of Technology into Primary School Science and Mathematics", **Malaysian Delegation of Senior Education Executives** to Macquarie University, November 2014

Michael Stevenson, "Leading Learning in a Digital Age", **ICEM (International Council for Educational Media)** , IGER, September 2014

Daniel Green, Sarah Boyd, "Makers in the Classroom", **ClassTECH Conference,** March 2015

Sarah Boyd "Maker Spaces in Education" Lecture for **Macquarie University's EDUC 362 Unit,** May 2015

John Burfoot "Robotics in Education" Lecture and Tutorials for **Macquarie University's EDUC 362 Unit,** May 2015

Cathie Howe "Digital Games and Learning" Lecture for **Macquarie University's EDUC 362 Unit**, April 2015

Daniel Green "Intro to Game Design with Kodu" Tutorials for **Macquarie University's EDUC 362 Unit**, April 2015

LIGHT, MUSIC & IDEAS VIVID SYDNEY

Cathie Howe, VIVID Ideas: Breakfast Roundtable on STEM, Innovation and Creativity in the Classroom, for key leaders from government, education and private sections. (Special Invitation), **VIVID Sydney Festival**, May 2015

Cathie Howe, Panel Member, VIVID Ideas: Creating and Innovating with Technology in the Classroom Panel Session, **VIVID Sydney Festival,** May 2015

Daniel Green, Sarah Boyd, "Fun Programming with the Intel Galileo", **VIVID Sydney Festival**, May 2015

CATHIE HOWE AND NERIDA MCCREDIE PRESENTING PROJECT FINDINGS AT CLASSTECH CONFERENCE

GREAT TEACHING, INSPIRED LEARNING

Recognise and share outstanding practice and initial teacher education.

STATE NSWDEC PLAN

Goal 15 Improve the Quality of All Teaching

MACICT PRIORITY

Promote Innovation

Daniel Green @iamdanielgreen · Mar 11
Thanks to everyone who participated in the @macict roundtable. Inspiring to see so many get involved! #FutureSchools

Khyiah Angel @KhyiahAngel · Jun 9
Great article in Education Technology about girls and coding by one of @macict's own educationtechnologysolutions.com.au/2015/05/22/get… Well worth a read!

Getting Girls Into Coding
Sarah Boyd. Women are missing from the technology landscape in Australia. According to a 2013 Australian workforce study, they occupy less than 20 percent of ...
educationtechnologysolutions.com.au

Partnerships & Collaborations Enhance our Programs

MacICT partners with other educational institutions, industry, and projects to further enhance our scope and reach. They help us expand our programs, improve our team's expertise and reach new lteachers and students.

LEGO Education Australia

Wiith the direct support of Sandra Googan (Senior Regional Manager) LEGO Education Australis is continuing to provide both financial support and expert advice for MacICT's robotics programs. Examples include:

1. Covering the cost of experts for workshop development and professional learning events
2. Providing robotics equipment and resources
3. Subsidising the development and running costs of workshops and conference presentations for $12,000
4. Advertising space in LEGO Education's 2015 national catalogue

Australian National Nuclear Science & Technology Organisation (ANSTO)

In 2015, MacICT was approached by ANSTO to run workshops during the school holidays to encourage students to become involved with engineering. MacICT facilitators have run holiday student workshops on robotics, game design and coding with Scratch. These have been sold-out events with fantastic feedback from all involved.

ANSTO have subsequently tapped into MacICT expertise and have funded a project where MacICT will design and build a robotics LEGO prototype of their neutron scattering instrument (Taipan model) for ANSTO to replicate and host in its Discovery Centre. MacICT will also provide build instructions and design some simple activities using the model that can be carried out by student visitors to the Centre.

Microsoft Australia

MacICT has been approached by Microsoft to support our team members in light of the 2015 rollout of Office 365 for all NSW DEC teachers and students. Microsoft have offered to provide training and support to ensure our staff can provide expert advice to schools.

Think 3

MacICT developed a partnership with Think 3 to run workshops for teachers on a range of entry level topics such as iPads A-Z and using Apple Configurator to manage iPads. These workshops gave teachers great introductory lessons on specific software and tools.

GREAT TEACHING, INSPIRED LEARNING
Recognise and share outstanding practice

RURAL AND REMOTE
Great teachers and school leaders; curriculum access for all

MACICT PRIORITY
Promote Innovation

Bridges to Higher Education & LEAP at Macquarie University

The Bridges to Higher Education initivative, funded by the Commonwealth Government's Higher Education Participation and Partnerships Program (HEPPP), works towards promoting continuing education in schools with low socio-economic status. MacICT has been collaborating with them since 2013 to provide support, training and project development for their Bridges Connect project. This has allowed MacICT to extend it's reach; we have travelled to Young and Kyogle to provide professional learning workshops for teachers, and run student boot camps using Connected Classroom video conferencing.

The robotics project, un in collaboration with MacICT, officially ended in 2014, but due to its great sucess, Macquarie University decided to incorporate it into it's LEAP Program (Learning, Education Aspiration, Participation). MacICT is continuing to support this program in 2015.

FEEDBACK

"It's given [students] the opportunity to explore possibilities outside their world to work with technology and 21st Century capacity building. It's given teachers a chance to explore new opportunities in their professional learning."

Janeen Silcock
[Principal, Kyogle High School]

"It was an amazing experience for our students. All the students were focused and enthusiastic. Must thank John for a great session."

Boopinder Masawa
[Teacher, Kyogle High School]

CLICK TO WATCH VIDEO ABOUT THE PROJECT

WORDPRESS

READ TEAM MEMBER JOHN BURFOOT'S BLOG POST ABOUT HIS INVOLVEMENT WITH THIS PROJECT

CLICK HERE

Google Australia

READ MACICT'S BLOG POST ABOUT THE MAKER MOVEMENT AT MACICT

CLICK HERE

In 2014 MacICT was successful in an application for a 'Computer Science for High School' (CS4HS) grant covering primary as well as high schools. This annual program promotes computer science education by helping to equip educators with the skills and resources they need to teach computer science and computational thinking concepts in fun and relevant ways. Globally, this program has already trained more than 12,000 teachers and reached over 600,000 students.

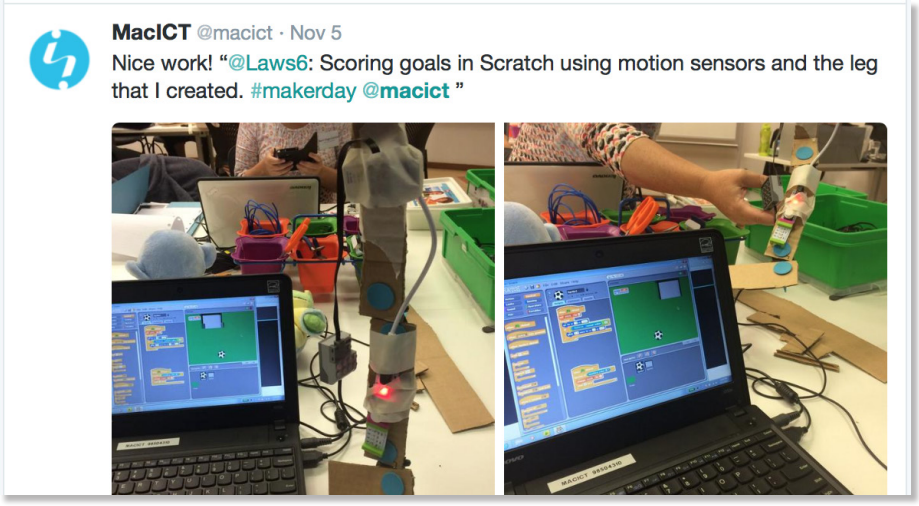
MacICT's successful application resulting in a $14,000 Google grant allowed us to develop a series of professional learning workshops for primary school and high school teachers titled, *MakerDay C.R.E.A.T.E! How to create reality with electronics, art and technology in education*. These workshops inspired by the Maker movement aimed to promote STEAM (science, technology, engineering, arts and science) skills. These workshops were very successful and after a couple more iterations, MacICT is now offering professional learning courses titled, *Learning through Makerspaces* to both Primary and High School teachers.

In 2015 Dr Matt Bower from Macquarie University and MacICT submitted a joint CS4HS application for a professional learning and research project. The submission was to fund the development of a professional learning course to assist K - 8 teachers develop their computational thinking pedagogies, drawing on contemporary innovative practices from around the world as well as prevailing literature in the computer science education field to progress the capabilities of teachers to teach the upcoming Australian Digital Technologies Curriculum. Research was to be conducted into the difficulties that teachers experience when learning computational thinking concepts and pedagogies. Were were successful in receiving a Google grant to fund the development of the professional learning only. Some data will be gathered from the project and used for research purposes. Project development will begin in Term 3, 2015.

FEEDBACK

"The MakerDay was THE best PL I've had all year. TOTALLY fuelled my passion for Making!"

Zeina Chalich
[Teacher, St Finbar's High School]



GREAT TEACHING, INSPIRED LEARNING
Recognise and share outstanding practice

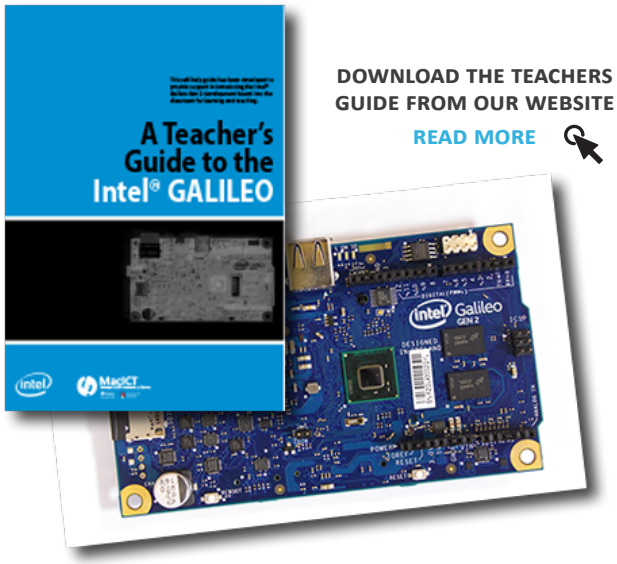
RURAL AND REMOTE
Great teachers and school leaders; curriculum access for all

MACICT PRIORITY
Promote Innovation

Intel Australia

In 2014, as a result of meeting MacICT's manager and STEAM team members, and seeing some of the work the team were conducting with Makerspaces, Intel Australia sought out MacICT's expertise for a project to develop a Teacher's Guide for their new Intel® Galileo Gen 2 development board, develop an engineering kit and run professional learning workshops. The project aimed to introduce teachers to programming with physical computing and support the development of STEM skills. Intel funded the $40,000 project with MacICT successfully developing a teacher's guide in late 2014 which will be distributed to teachers Australia wide, as well as being internationally available.

The partnership with Intel has been very successful and led to other opportunities for staff to present at conferences, teach inter-state and provide on-site professional learning services to schools.



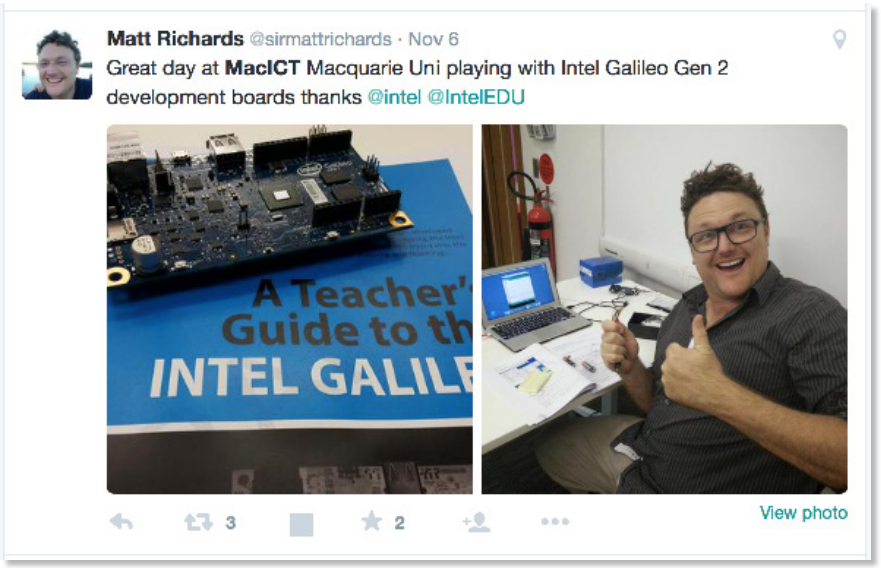
DOWNLOAD THE TEACHERS GUIDE FROM OUR WEBSITE

READ MORE

FEEDBACK

"We've been extremely pleased with MacICT's work in this space and certainly want to continue a long-term relationship with MacICT. Cathie and her staff have been enormously helpful and we have valued their input and all the work they have done."

Katie Ford
[Project Manager, Intel Australia]



GREAT TEACHING, INSPIRED LEARNING

Develop and maintain professional practice; Recognise and share outstanding practice and; initial teacher education

AUSTRALIAN CURRICULUM

RURAL AND REMOTE

Great teachers and school leaders; curriculum access for all

NSW QUALITY TEACHING MODEL

CONNECTED COMMUNITIES STRATEGY

Providing professional development opportunities, Increasing engagement of all children

HORIZON REPORT 2014 K-12 EDITION

1. Key trends Accelerating Educational Technology Adoption in Schools

- Rethinking roles of teachers and how schools work
- Innovative pedagogical practices
- Shift to deeper learning approaches
- Hybrid learning designs

2. Important developments in technology in schools

- BYOD
- Cloud computing
- Games and gamification
- Wearable technology

MACICT PRIORITY

Enhance Teaching & Learning

ENHANCING TEACHING AND LEARNING

Professional Learning Services

MacICT's professional learning services are informed by research that is carried out by the Centre or by other key reports and organisations. It is always fresh and evidence based. Our activities also fuel further research avenues.

At MacICT we believe that learning how to use technology is not enough; the heart of 21st century learning is about becoming a proficient and independent lifelong learner. Our activities promote this through an inquiry-based approach to learning where students are encouraged to collaborate and be creative in solving open ended challenges. MacICT provides quality NSW Institute of Teachers accredited Professional Learning courses that introduce teachers to a variety of technologies and pedagogy around ICT in the classroom. Our workshops and events are open to all teachers, educators and pre-service teachers.

At MacICT we believe that learning how to use technology is not enough; the heart of 21st century learning is about becoming a proficient and independent lifelong learner.

FEEDBACK

"I enjoyed the course and it wasn't one of those professional developments that you leave thinking, 'I've heard that all before.' What a relief and breath of fresh air. A course that inspires a teacher to look more deeply into what was learnt on the day and inspires you to take a different perspective in your teaching and learning."

Leigh
[Participant, Coding in the Classroom]

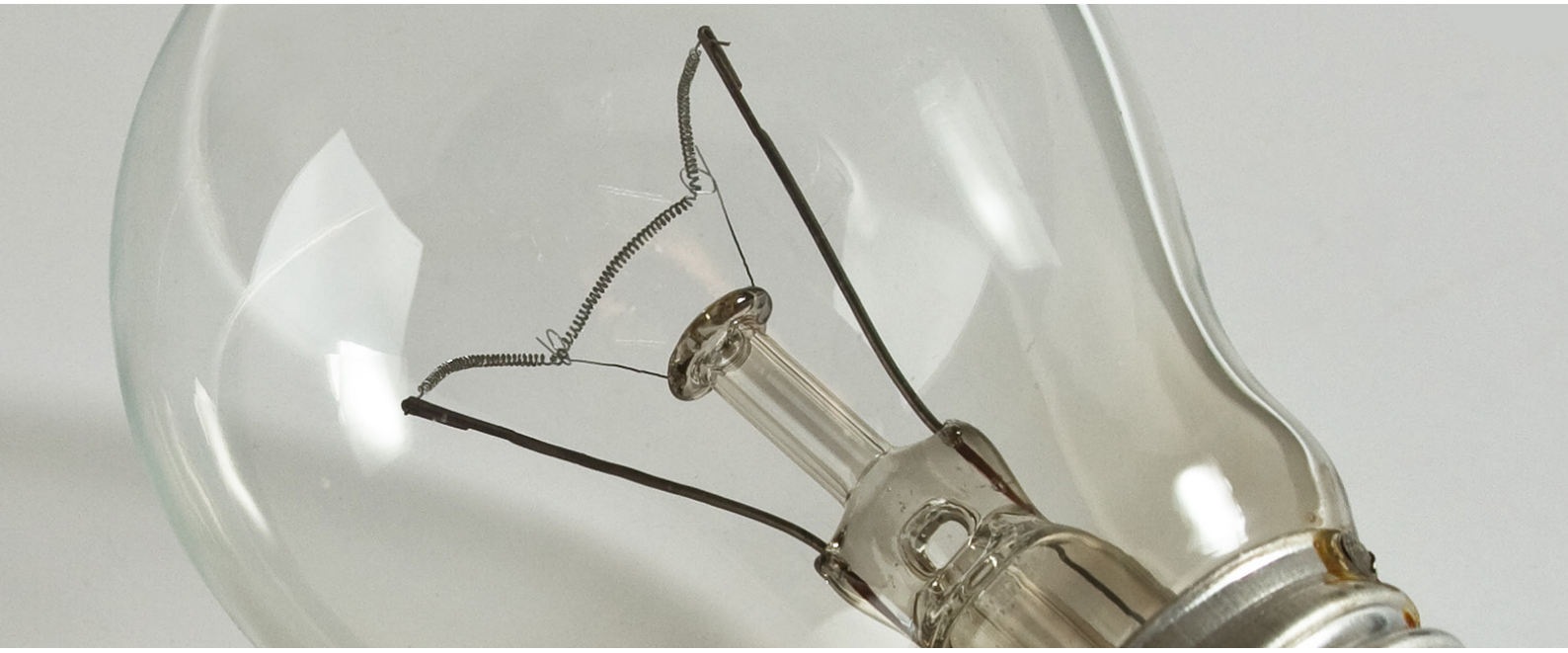
Participation - A Brief Summary

In 2014-15 MacICT ran workshops, courses and school-specific professional learning.

1463
UNIQUE PARTICIPANTS

642
UNIQUE SCHOOLS

91
EVENTS



MacICT provides many BOSTES Quality Teacher Council registered courses. Courses may run a few times before registration is saught, to make sure any final edjustments are implemented.

GREAT TEACHING, INSPIRED LEARNING

Develop and maintain professional practice; Recognise and share outstanding practice and; initial teacher education

AUSTRALIAN CURRICULUM

RURAL AND REMOTE

Great teachers and school leaders; curriculum access for all

NSW QUALITY TEACHING MODEL

CONNECTED COMMUNITIES STRATEGY

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2. Important developments in technology in schools

- BYOD
- Cloud computing
- Games and gamification
- Wearable technology

MACICT PRIORITY

Enhance Teaching & Learning

Teacher Workshops

These workshops, usually one or two days are designed to be hands-on and collaborative. No prior learning is assumed for most workshops.

Bringing Computing to Life: Raising the Bar in Teaching Computing

Provides a range of exciting strategies and resources for NSW's four dedicated computing courses (IST, IPT, SDD and IT(MM)) that teachers can use directly in their classrooms to create inspiring computing experiences for their students.

12HRS - 2 DAYS | QTC REGISTERED | CREATIVITY | HIGH SCHOOL

FEEDBACK

"I am not a creative person and I am the only IT teacher at my school. This was the perfect PD for me, it's exactly the pedagogical practices and learning activities that I need to bring to my classroom. I feel inspired and informed."

[Participant, Bringing Computing to Life]

Robotics in the Classroom

With Bee-Bots, Pro-Bot, LEGO WeDo and LEGO Mindstorms EV3

Robotics provides a highly engaging medium for creativity, critical thinking, collaboration and communication – four essential skills for learning and ICT within a curriculum context. This workshop promotes independent learning through an inquiry-based approach where participants are encouraged to collaborate and be creative in solving open ended challenges.

5HRS | QTC REGISTERED | CREATIVITY | K-12 | DESIGN

FEEDBACK

"The method of delivery modelled discovery, problem solving techniques and associated skill development in these areas which was very useful for thinking about classroom delivery"

[Participant, Robotics in the Classroom]

Augmented Reality: A New Dimension in Learning

Augmented Reality has the potential to provide learning opportunities that are both individual and personal, learning experiences that aren't offered (or are readily available) in reality and challenging and authentic design based learning tasks.

5HRS | QTC REGISTERED | CREATIVITY | DESIGN | DIGITAL LITERACY

Introduction to the 'FIRST' LEGO League Robotics Program

In partnership with LEGO Education Australia, this workshop unpacks the FIRST LEGO League Program, a global phenomenon inspiring students to persue engineering and careers in science. Teachers will be shown how the program addresses key learning areas and how teachers can integrate FLL within the classroom.

5HRS | CREATIVITY | DESIGN | PROGRAMMING

3D Printing and Designing for the Classroom

An introductory workshop for primary and secondary teachers across all KLAs wishing to introduce 3D design and printing into their classrooms and coursework.

5HRS | CREATIVITY | DESIGN | DIGITAL LITERACY | NEW


Sally-Anne Robertson @eduemum · Oct 13
@macict This was fab. fun - anyone interested in Maker Spaces or tinkering in general should go. Great way to integrate STEM in other KLAs.
1
1
View conversation

GREAT TEACHING, INSPIRED LEARNING

Develop and maintain professional practice; Recognise and share outstanding practice and; initial teacher education

AUSTRALIAN CURRICULUM

RURAL AND REMOTE

Great teachers and school leaders; curriculum access for all

NSW QUALITY TEACHING MODEL

CONNECTED COMMUNITIES STRATEGY

Providing professional development opportunities, Increasing engagement of all children

HORIZON REPORT 2014 K-12 EDITION

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MACICT PRIORITY

Enhance Teaching & Learning

MakerDay C.R.E.A.T.E: Educational Systems That Facilitate Design And Foster Creativity

Also known as 'Learning Through Maker Spaces'

This workshop, initially funded by Google, were first inspired by the growing popularity of D.I.Y. building and tinkering projects commonly known as the 'Maker Movement'. This workshop looks at how teachers can engage their students with programming, electronics, engineering and design by bringing static objects to life using digital technology

5.5HRS CREATIVITY DESIGN DIGITAL LITERACY CODING RECYCLED MATERIALS ELECTRONICS NEW

Good Game Design: Transforming Students From Consumers To Designers And Creators Of Digital Content

Game design provides a context for inquiry and discovery, leading students to become active problem solvers, to engage in their own learning and develop 21st century fluencies.

5HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY

FEEDBACK

"[It was} great because it was practical and plenty of time to play with Kodu. Also the Google Docs activity was really useful and a good example of practicing what you're preaching - collaboration."

[Participant, Good Game Design]

"This really stretched me, which was a good thing. I loved the research framework that was presented prior to the practical application, and then the opportunity to explore, tinker and create."

[Participant, Good Game Design]

Introduction to the Intel Galileo

In partnership with Intel Australia, MacICT has run workshops that provided participants with an opportunity to learn about the Intel Galileo development board and participate in a range of activities that demonstrated the ability to integrate the Galileo into learning and teaching.

5HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY NEW

Game Development with Unity 3D

Unity is a powerful, easy to learn 3D modelling and game engine that is very flexible and well supported. This workshop takes high school teachers to the next level in engaging their students in working in a 3D environment, programming with real code and designing gaming experiences.

5HRS CREATIVITY DESIGN DIGITAL LITERACY NEW

FEEDBACK

"All aspects were of a very high quality. Peter is an expert in his subject area has should look to facilitate more of this particular work with teachers. Particularly with the advent of the Technologies component of the Australian Curriculum."

[Participant, Game Development with Unity]

Stephanie Salazar @stephygsalazar · Mar 30

Great course today at @macict! Thanks Neville! Equipped with many great ICT resources which can be used for authentic science teaching!

3 1

Teacher Courses

These courses involve a follow-on component. Usually a 4-week task counting toward 4.5hrs of their professional learning, this task is designed to engage teachers in real learning through doing. We want our workshops to be practical and have real classroom impact. Teachers create a lesson plan, or something similar, and share this with the other participants in an online space.

Creative Video Production With Ipads: Using Digital Media Technologies To Enhance Learning And Teaching

In this course, teachers will uncover the learning potential of digital video production through collaborative and online exploration of a wide variety of iPad apps and online resources. Participants will collaborate on the creation of a film using the Design Thinking process.

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY NEW

FEEDBACK

"I really liked how the content was taught, then we were given the opportunity to explore the apps before we were able to create amazing video production. I found completing a lesson plan and example a great idea. I love professional learning I can actually apply in the classroom."

Fabienne
[Participant, Creative Video Production]

"Thank you again for your help, I have honestly found this to be the most enjoyable and useful TPL course I've ever had!"

Trudie
[Participant, Creative Video Production]

"[Since this course] I have worked with other teachers at my school to implement this technology in their classroom and have team taught with them. I have created an iBook to share with teachers who are interested in using green screen technology in their classroom and have designed and successfully implemented a GATS unit of work which involved working with members of the public. I am about to attend a conference in Singapore as an Apple Distinguished Educator and cannot wait to share what I learnt at MacICT with others."

Jason
[Participant, Creative Video Production]

Writing Revolution: Creating Innovative Integrated Multimodal Texts For Stage 3 And 4 Teachers

Literacy is changing. Technology has become an intermediary to everything we do. Reading and writing are no longer isolated or passive affairs in our socially networked global learning community. Students are now finishing school in Year 12 using reading technologies that weren't invented when they began Kindergarten. During this hands-on workshop, participants will design and create an integrated multimodal text utilising aspects of all text types.

NEW

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY

Bringing Science to Life: Integrating ICT into the Science and Technology K–6 NSW Syllabus for the Australian Curriculum

The new NSW K-10 Science Syllabus mandates the integration of ICT to support a range of teaching, learning and assessment approaches. This provides great scope for the integration of new and emerging technologies in the design of immersive, authentic learning. This course helps teachers gain confidence and ability to integrate ICT meaningfully into learning and teaching to support the aims and objectives of the new Science K-6 syllabus.

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY NEW

GREAT TEACHING, INSPIRED LEARNING

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MACICT PRIORITY

Enhance Teaching & Learning

21st Century Curriculum Design with iPads: Mathematics / English

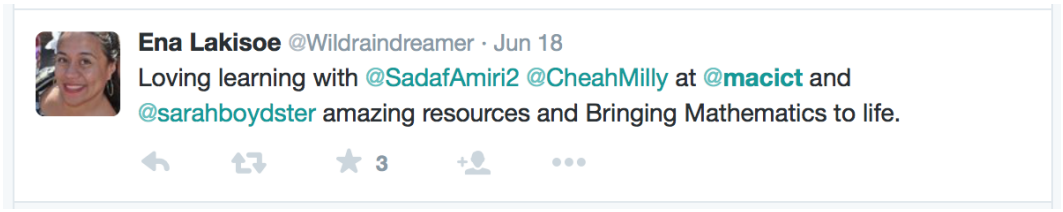
Exploring and evaluating the pedagogy behind the use of iPads in the classroom, sampling apps and discussing ways in which the technology could be integrated into the mathematics curriculum and the english curriculum (run as two separate courses).

13HRS | QTC REGISTERED | CURRICULUM SUPPORT | PEDAGOGY | FOLLOW-ON LEARNING | NEW

Bringing Mathematics to Life: Integrating ICT into the Mathematics K-6 NSW Syllabus for the Australian Curriculum

The increasing variety and sophistication of software and apps available today allow primary teachers to really enhance and extend learning in Mathematics from remembering and understanding to creating and evaluating. In this workshop we will show teachers how to use technology in innovative ways to more deeply engage students and meet the learning outcomes from the K – 10 syllabus within an BYOD environment.

10HRS | QTC REGISTERED | CREATIVITY | DESIGN | DIGITAL LITERACY | NEW



Capturing Stories Through Play: Composing multimodal texts using LEGO Education Story Starter, iPads and more for K-2 teachers

Play has long been acknowledged as an important part of learning. Through play, children engage with and explore the world around them in much the same way that we encourage them to learn. Researchers and educational theorists have long stressed the importance of harnessing the spirit of curiosity, experimentation and creative expression inherent in play to support and enhance children's learning. This hands-on workshop is centred on capturing stories naturally told through play, and translating these stories into multimodal texts.

10HRS | QTC REGISTERED | CREATIVITY | DESIGN | DIGITAL LITERACY | NEW

FEEDBACK

"The learning experience was very valuable and I liked how we were given the opportunity to use concrete materials and had the freedom to use these materials however we wanted. We did a lot of hands on activities and Karolina presented information to us in many different ways which we can also use in the classroom with our own students."

[Participant, Capturing Stories Through Play]

"[I most enjoyed] being exposed to the research that reinforces the importance of play provides the strong pedagogical base to guide classroom practice, and so provided a key component of the day for me. The hands on component was very important too, because you can see how it might look in your own classroom, when otherwise you may not have the time to do this exploration."

[Participant, Capturing Stories Through Play]

"I took a lot away from this course. The most valuable skill I found that I learnt on this course was how to use green screen technology. By implementing what I have learnt on this course in the classroom, my students have become further motivated and are developing deeper understandings of the knowledge they are interacting with. I have found green screen technology to be a tool that can be coupled with learning paradigms such as challenged based learning. Furthermore, the technology also allows students to create exciting and relevant multimodal texts that meet many outcomes within the new English syllabus."

[Participant, Capturing Stories Through Play]

Coding in the Classroom: Using Digital Media Technologies To Enhance Learning And Teaching For K-6

Coding is becoming an increasingly important skill for 21st century learners. By learning to code, students are also learning mathematical and computational thinking, strategies for problem solving, systematic reasoning, project design and how to effectively communicate their ideas. Through this introductory course, teachers will be shown how to incorporate coding in cross – curricular activities, and be introduced to a variety of visual programming languages using tablet apps and other software.

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY NEW

"I have used what I learnt to plan ICT activities to embed teaching and learning activities in the classroom. These activities are Maths, English, dance and drama. Students enjoyed the related activities and were engaged as soon as they realised it related to coding and programming."

[Participant, Coding in the Classroom]

Professional Learning in a Digital Age: 21st Century Tools Supporting 21st Century Teachers

Workshop + Online Course (workshop delivery via webinar available)

Good twenty-first century teachers are good twenty-first century learners. Professional Learning in a Digital Age (PLDA) is a four-week blended course that equips teachers and school leaders with the knowledge, skills and tools needed for personalised, professional learning in a digital age. With an emphasis on learning through online participatory cultures (Clinton, et. al. 2006), the course explores the role of communication, critical thinking, collaboration and creativity. The course also examines the role of current technology tools for developing a Personal Learning Network (PLN), including Google Apps for Education, Google Plus Communities, Twitter and Feedly.

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY NEW

"Congratulations to everyone. This is an original and inspirational way to share ideas. Whilst at times applying this new knowledge has been frustrating and very time consuming, overall it has been a worthwhile experience. Amazing!!"

Neil

[Participant, Professional Learning in a Digital Age]

"I really enjoyed the two methods of delivery (face-to-face / online). The four weeks were very hectic but achievable. It actually empowered me to research how other teachers use technology whereas before I felt I had too much to do. It changed my focus!"

[Participant, Professional Learning in a Digital Age]

"I feel I have gained so much form this course. The pace of technology is moving far more quickly than I can keep up with and although it certainly doesn't come naturally to me, I found the concepts and methods of collaboration really interesting."

[Participant, Professional Learning in a Digital Age]

"I'm doing Professional Learning groups at school next fortnight on building a Professional Learning Network, starting with Twitter and Feedly. Then next term I'm going to look at writing on the reading with staff. So, as you can see, this course has been a fantastic opportunity for me to learn new skills and now I will be able to share them with the rest of our staff! Thanks again for a fun and challenging course!"

Alison

[Participant, Professional Learning in a Digital Age]

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MACICT PRIORITY

Enhance Teaching & Learning

Special Events

These one-off events are an opportunity for teachers to learn from special guest experts who have deep knowldge and expertise.

Epic Learning!

Featuring international guests Peggy Sheehy and Marianne Malmstrom

This day explored the ways in which games, whether dedicated to education or off the shelf, can open up opportunities for engagement and learning for all students. Presenters demonstrated programs where games such as World of Warcraft and Minecraft are truly igniting learning and participants got the opportunity to explore these programs during a hands-on session.

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY

Playing and Learning with LEGO® StoryStarter

Featuring international guest Chris Rogers

Through play, children engage with and explore the world around them. Researchers and educators have long recognised the benefits of harnessing the spirit of curiosity and experimentation inherent in play to support and enhance children's learning. Many forms of children's play have imaginative exploration and expression at their heart, so it is no surprise that play is often considered the foundation of literacy development. This half-day workshop focused on LEGO StoryStarter as a resource to support literacy development in the K-4 classroom. By capturing stories generated through play experiences, teachers can utilise children's individual interests and emerging capacities to develop language and expression, and build creative and problem solving skills.

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY

'Future Pedagogies' Project Showcase Day: Panel Discussion and School Presentations

Featuring panelists Lori Lockyer, Dr Kerry-Anne O'Sullivan, Judy O'Connell and Meredith Ash

Thr Future Pedagogies project explores how educators develop, employ and evaluate pedagogies to meet the evolving needs of their school communities. The project examines the relationship between pedagogical change and evidence-based practice. Participants examine issues in current research, identify pedagogy-related problems in their school context and develop a strong evidential base to work through solutions and effect meaningful change. The project considers the nature of pedagogical change in the context of the realities contemporary schools face, including the implementation of national teaching standards and curricula, impact of technology and pressures of high stakes testing.

For the showcase day MacICT invited educators to attend a panel discussion entitled "Future Pedagogies: What's Your Vision?" and listen to the presentations by each school's on their journey throughout the project.

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY

School Services

In 2015 MacICT has expanded its professional learning services to offer whole school approach professional learning. Tailored to the needs of schools, these projects can last a day ofr a few terms. Our staff work with schools to develop a program that will meet their needs and build capacity and consensus within the school.

Beecroft Public School

Featuring international guests Peggy Sheehy and Marianne Malmstrom

This day explored the ways in which games, whether dedicated to education or off the shelf, can open up opportunities for engagement and learning for all students. Presenters demonstrated programs where games such as World of Warcraft and Minecraft are truly igniting learning and participants got the opportunity to explore these programs during a hands-on session.

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY

Cherrybrook Technology High School

Featuring international guests Peggy Sheehy and Marianne Malmstrom

This day explored the ways in which games, whether dedicated to education or off the shelf, can open up opportunities for engagement and learning for all students. Presenters demonstrated programs where games such as World of Warcraft and Minecraft are truly igniting learning and participants got the opportunity to explore these programs during a hands-on session.

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY

Future Pedagogies - Regional School Visits

Featuring international guests Peggy Sheehy and Marianne Malmstrom

This day explored the ways in which games, whether dedicated to education or off the shelf, can open up opportunities for engagement and learning for all students. Presenters demonstrated programs where games such as World of Warcraft and Minecraft are truly igniting learning and participants got the opportunity to explore these programs during a hands-on session.

10HRS QTC REGISTERED CREATIVITY DESIGN DIGITAL LITERACY

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MACICT PRIORITY

Enhance Teaching & Learning

Student 'Boot Camp' Excursions

MacICT's provides opportunities for students to visit Macquarie University and experience our programs within a classroom context. Our course developers can explore the theories that their professional learning courses are based on in a real context with students. Teacher can also see the theory in practice by bringing their students to us and seeing the possibiities for themselves.

Student Boot Camps are also a fantastic opportunity for MacICT's staff to remain current and evidence based in their recommendations for teacher practice, and gain hands-on experience that further enriches the courses that they run. MacICT's excursions provide a context for inquiry and discovery, leading students to become active problem solvers and engage in their own learning.

Robotics Boot Camps

Robotics provides a highly engaging medium for creativity, critical thinking, collaboration and communication, four essential skills for learning and ICT within a curriculum context.

Game Design Boot Camps

Game design offers students a unique platform to address essential skills for learning. These include creativity and innovation, critical thinking, iterative problem solving, communication, collaboration, and information, media and ICT literacy. This Boot Camp is aimed to introduce students to 'Good Game Design' principles through activities that shift students' thinking from that of a player to a designer.

Augmented Reality Boot Camps

Using augmented reality (AR) in the classroom engages students far beyond worksheets, textbooks, video and traditional print. Enabling students to create AR experiences related to syllabus outcomes will promote deeper learning of content, connect knowledge and information, and promote the development of design, creativity and ICT skills.

Game Development with Unity 3D Boot Camps NEW

Unity (unity3d.com) is a powerful, easy to learn game engine that is very flexible and well supported. Unity supports almost every platform and has a huge number of games made with it. Unity has a free version with loads of functionality allowing anyone to use it. Learning Unity is a great first step into learning how to use big game engines.

3D Printing Boot Camps NEW

This boot camp begins with students observing 3D printers in action along with practical advice about using them. In small groups they begin constructing creative solutions to 3D problems. Students learn to use 3D design computer applications. After working with a collection of fun logic puzzles groups will design and print their own 3D puzzle using simple and free 3D design software.

Maker Day Boot Camps NEW

Students across each workshop will participate in specific computer coding activities, tactile building tasks and electronic circuit wiring. Program, build and electrify activities made at each Boot Camp will address a real world need, and students can also take them home to keep!

Coding Boot Camps NEW

Coding is becoming an increasingly important skill in 21st Century life, as technology becomes more integrated into our everyday activities. By learning to code, you build skills in mathematical and computational thinking, problem solving, systematic reasoning, project design and the communication of ideas.

100

ROBOTICS BOOT CAMPS

30

GAME DESIGN BOOT CAMPS (INCL UNITY)

12

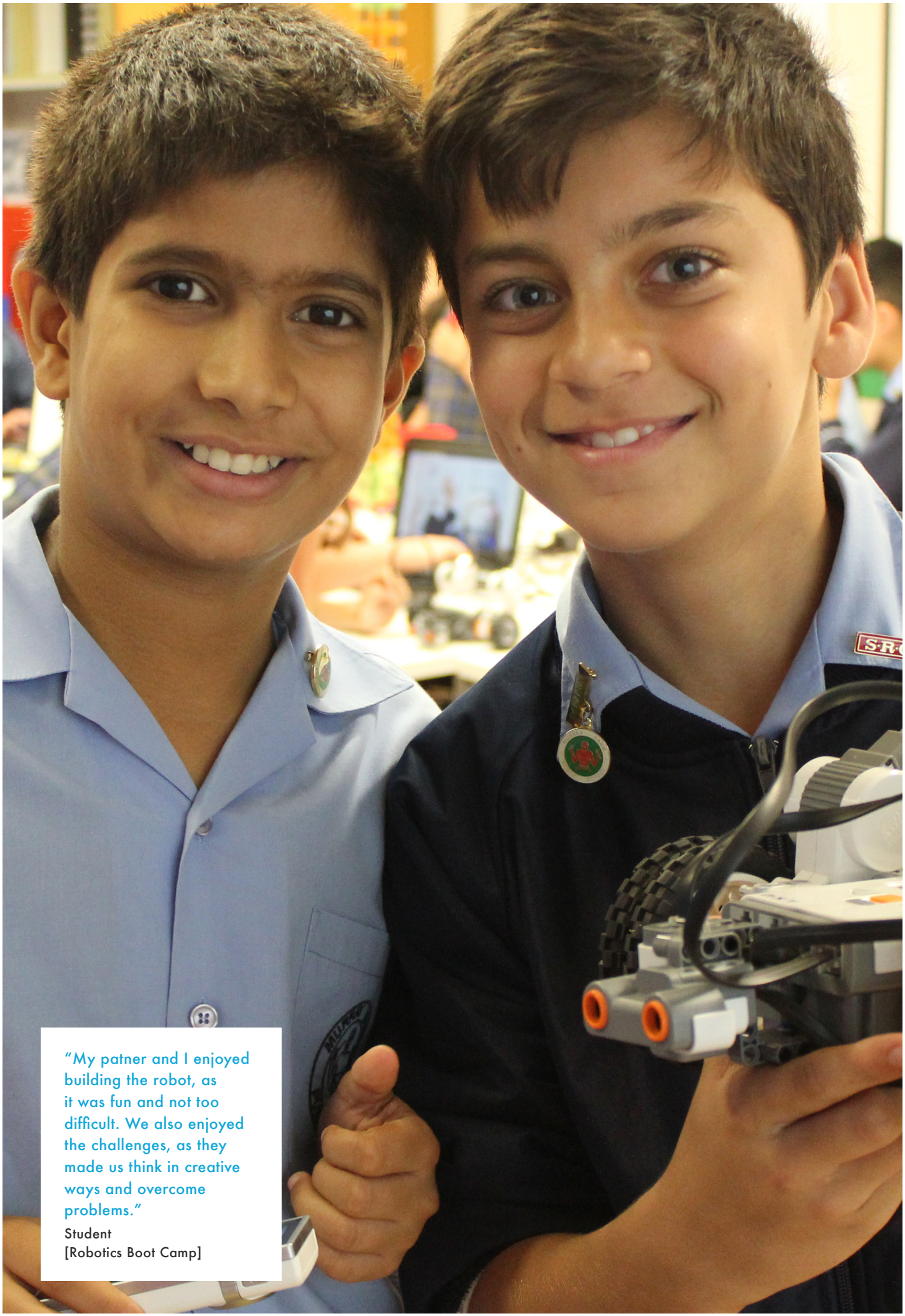
AUGMENTED REALITY BOOT CAMPS

+11

CODING, 3D PRINTING, MAKER SPACES BOOT CAMPS (BEGAN IN TERM 2 2015)

"I enjoyed how you got to build and take apart the robot and got to make adjustments and modifications to it. I also liked the different activities and how everyone could do something."

Student
[Robotics Boot Camp]



"My patner and I enjoyed building the robot, as it was fun and not too difficult. We also enjoyed the challenges, as they made us think in creative ways and overcome problems."

Student
[Robotics Boot Camp]

3612

STUDENTS PARTICIPATED IN MACICT'S WORKSHOPS

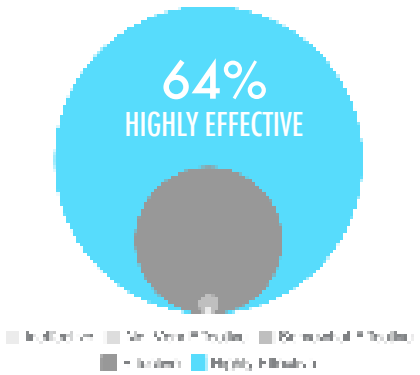
FEEDBACK

"[I enjoyed the] ability to figure out how to program the robot, quite different from html coding. It was also pretty interesting to hear my partner's ideas in order to solve a certain problem."

Student
[Robotics Boot Camp]

Students: How would you rate this event?

Teachers: How effective was this Boot Camp in meeting curriculum outcomes?



"[I enjoyed] learning how to construct a LEGO robot and learning new things that are not provided at school."

Student
[Robotics Boot Camp]

"Learning how to program something to move was fantastic. I have brought it back to school and every class is learning to program with Kodu."

Student
[Game Design Boot Camp]

"The event was awesome for me as a teacher as I learnt so much about how they can be used within the classroom and how it all works as well as the tutorials that I can do with my class. As students the kids learnt so much about how they work, the coding that goes with it, how to program, take videos, save them and it was fantastic because it was so hands on which is how my students learn the most."

Teacher
[Robotics Boot Camp]

"This day was a "game changer" for most, if not all of the students in the way the workshops presented the various challenges to their enjoyment. They are reluctant to leave!!!"

Teacher
[Robotics Boot Camp]

"I enjoyed making the auras so we could create a virtual tour of our school; it was really fun and engaging. It also was fun doing it with a small group of students so we could share and see what each other had to say and do."

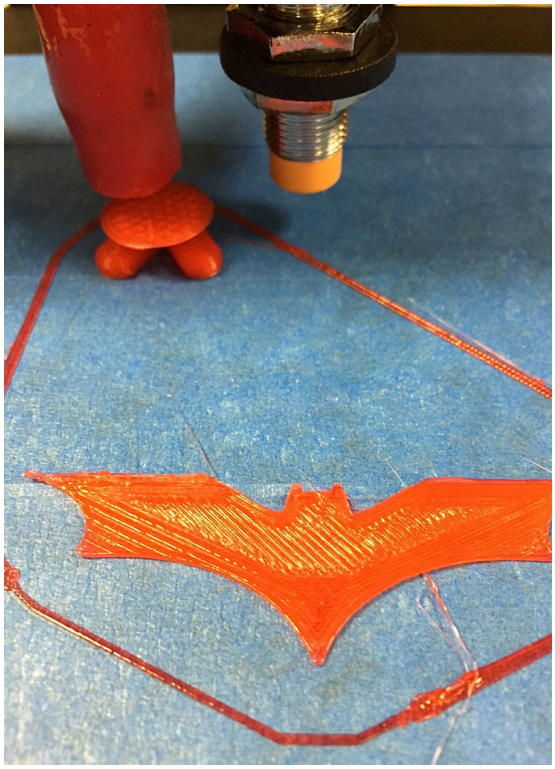
Student
[Augmented Reality Boot Camp]

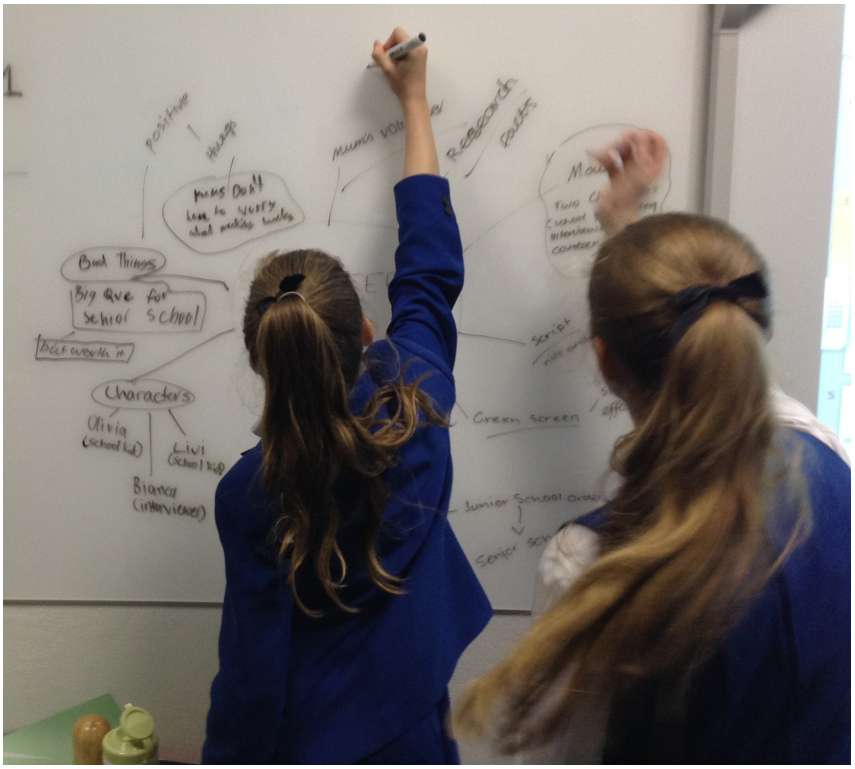
"I loved this because most of the time what you can do i class time is very very very limited but when I come here I can have freedom in school time."

Student
[Game Design Boot Camp]

"The opportunities for the students to solve problems rather listening to someone telling them how was the best part of today's workshop. Similarly, the opportunity for the students to select their own challenges throughout the day was valuable."

Teacher
[Robotics Boot Camp]

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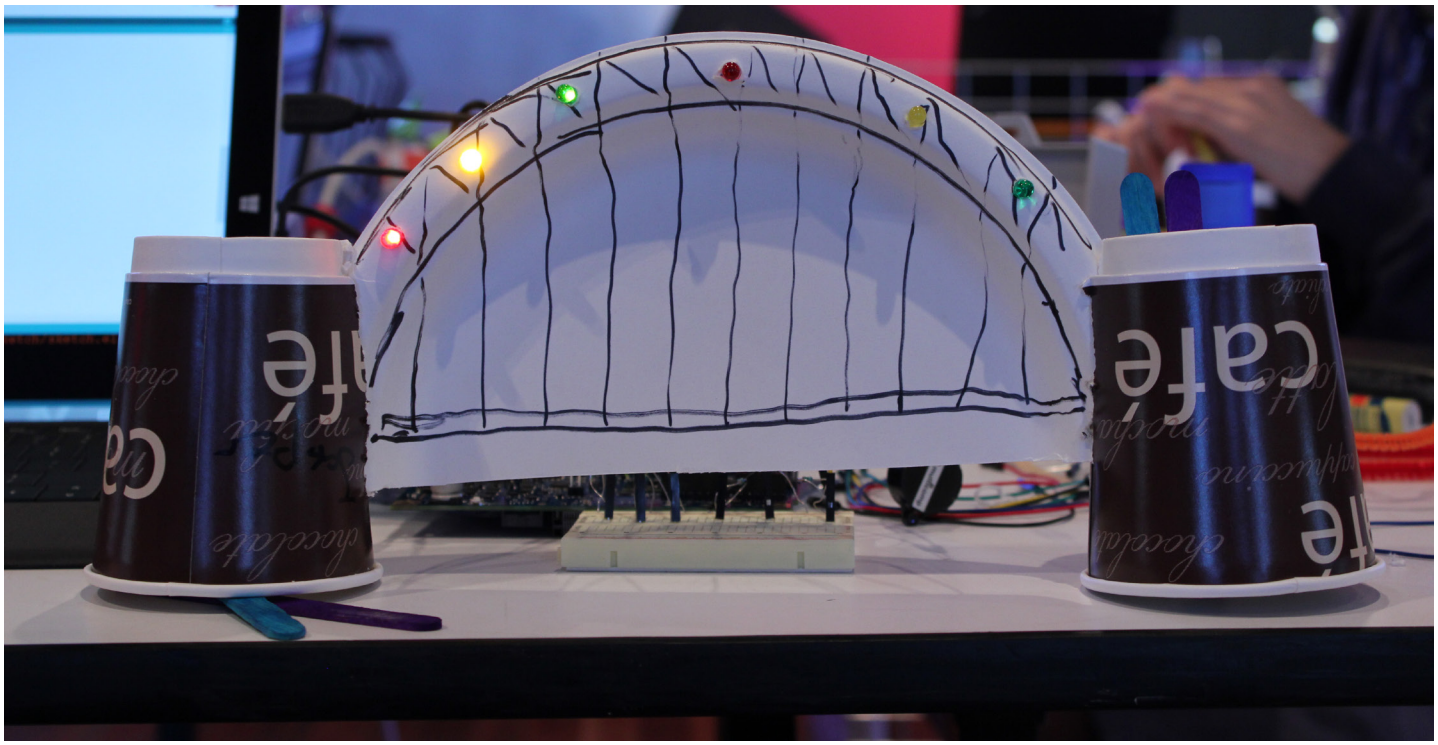
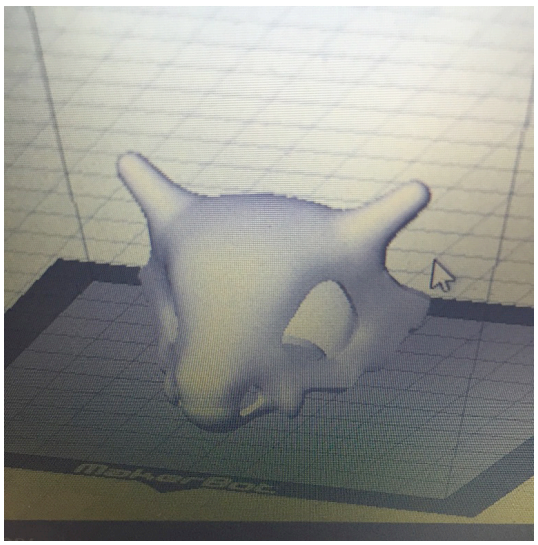
Bad Things
Big Que for Senior School
Characters
Olivia (school kid)
Livi (school kid)
Bianca (interviewee)
Green screen
Junior School
Senior



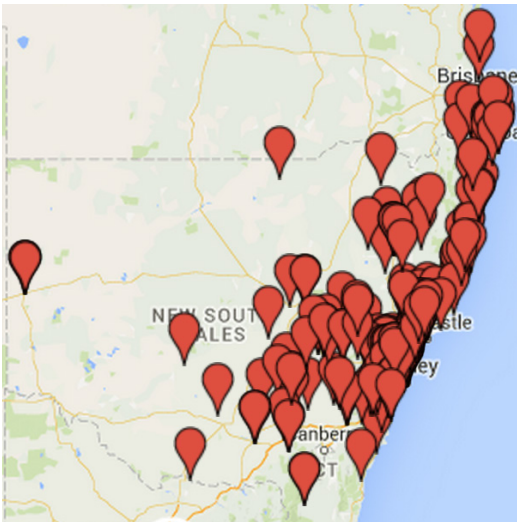


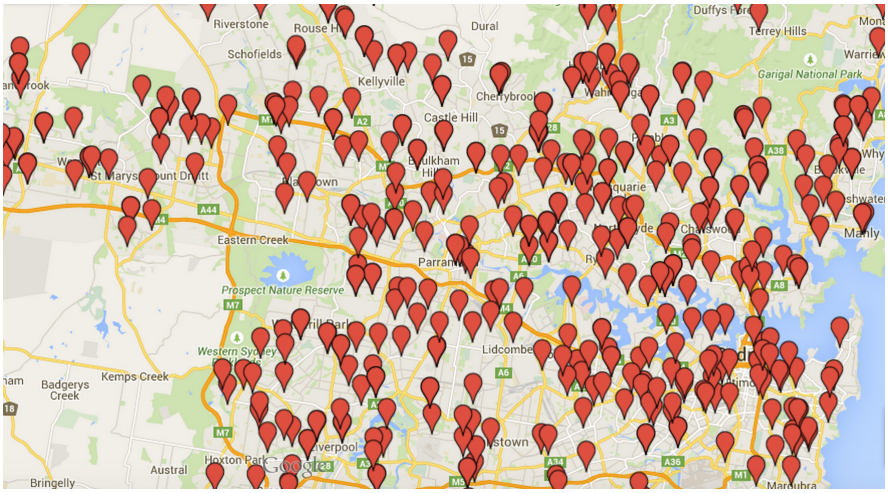
MacICT's Reach

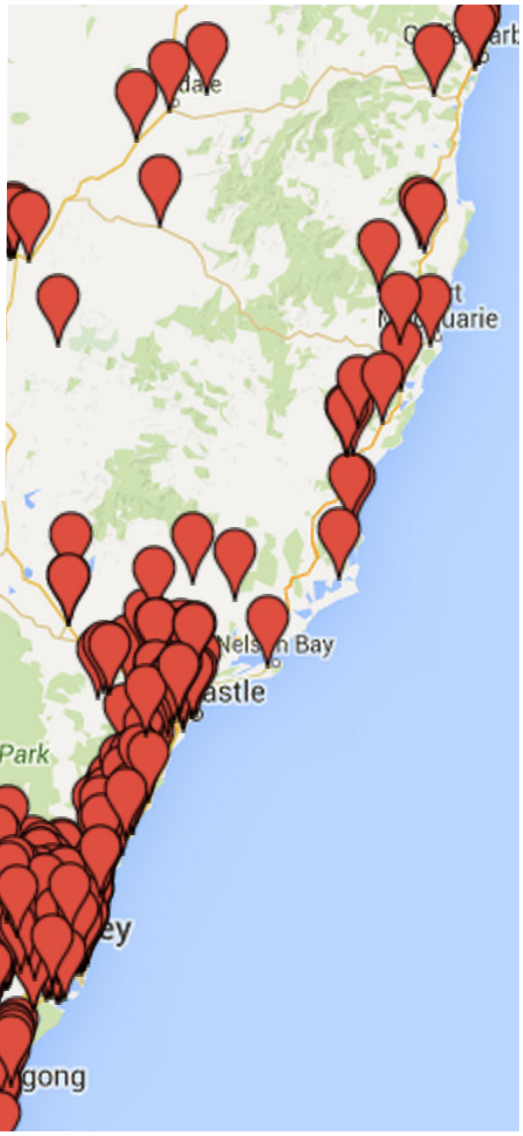
Schools participating in MacICT events in 2014 -15

VIEW THE INTERACTIVE GOOGLE MAP

CLICK HERE







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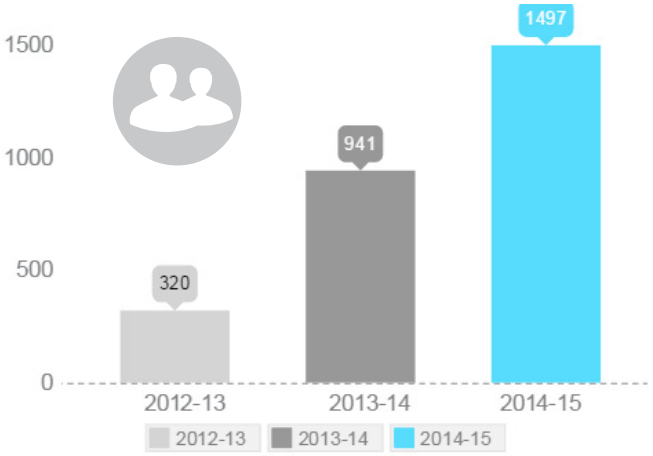
MACICT PRIORITY

Enhance Teaching & Learning

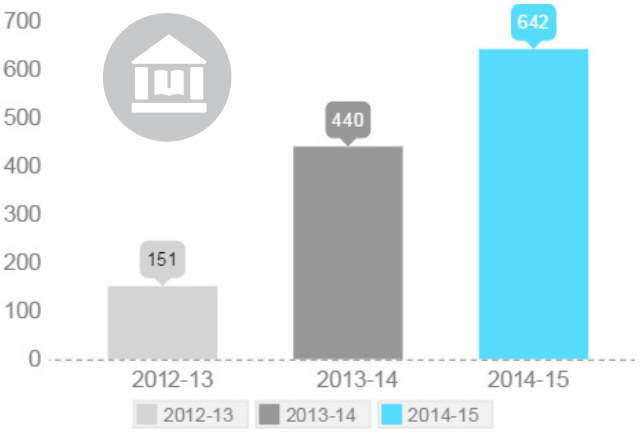
Data Comparisons

Are MacICT's participation rates increasing?

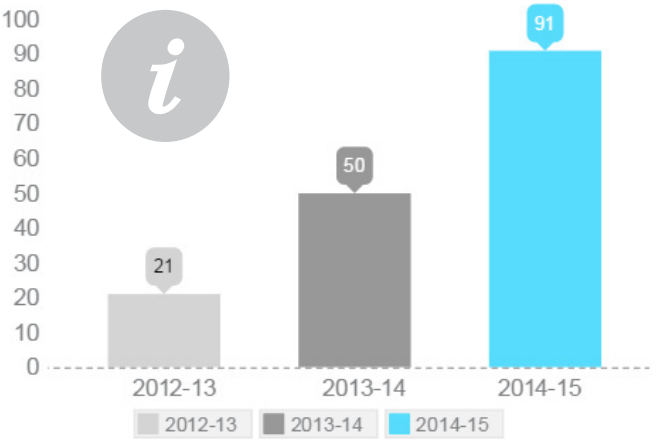
Number Of Particpants



Number Of Unique Schools/Organisations



Number Of Professional Learning Activities



This year has seen a

59%

increase in the number of participants for MacICT's professional learning services

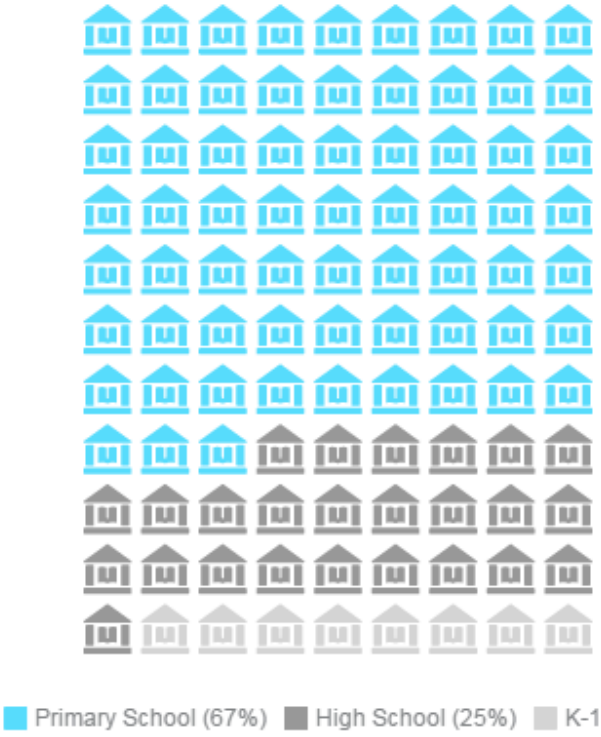
On average, MacICT's output of professional learning services has increased by

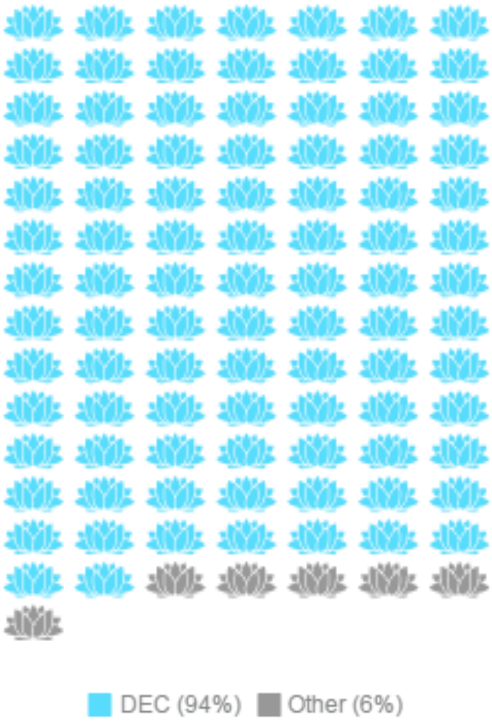
340%

from 2012-13 to 2014-15

Average percent increase of participants, schools and events

What are MacICT's participant demographics?





GREAT TEACHING, INSPIRED LEARNING

Develop and maintain professional practice; Recognise and share outstanding practice and; initial teacher education

AUSTRALIAN CURRICULUM

RURAL AND REMOTE

Great teachers and school leaders; curriculum access for all

NSW QUALITY TEACHING MODEL

CONNECTED COMMUNITIES STRATEGY

Providing professional development opportunities, Increasing engagement of all children

HORIZON REPORT 2014 K-12 EDITION

1. Key trends Accelerating Educational Technology Adoption in Schools

- Rethinking roles of teachers and how schools work
- Innovative pedagogical practices
- Shift to deeper learning approaches
- Hybrid learning designs

2. Important developments in technology in schools

- BYOD
- Cloud computing
- Games and gamification
- Wearable technology

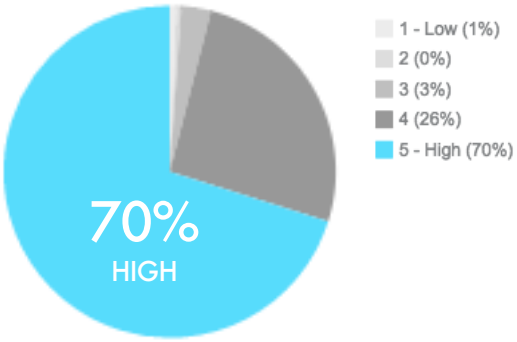
MACICT PRIORITY

Enhance Teaching & Learning

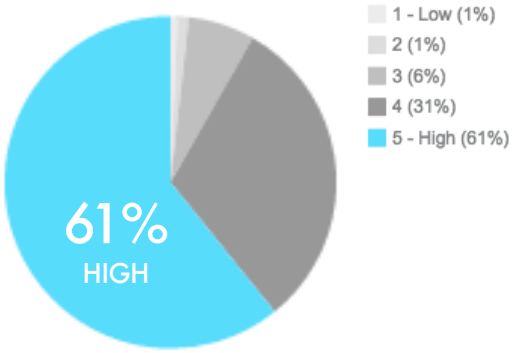
Evaluation

How are MacICT's activities rated by participants?

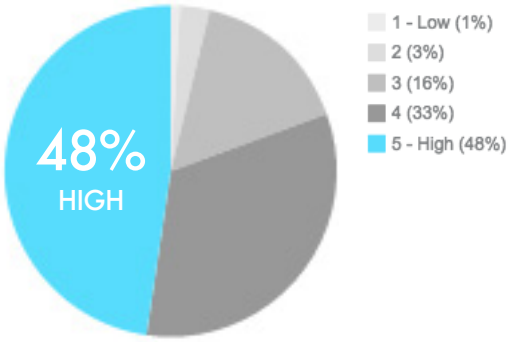
Please rate the course presenters knowledge and preparation.



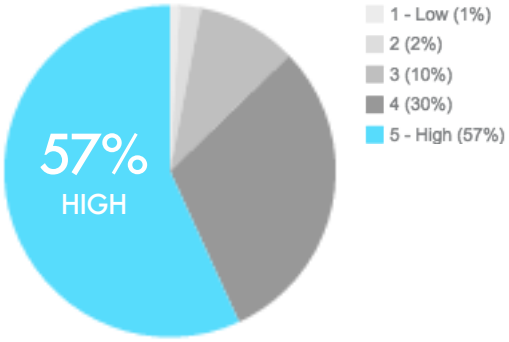
Please rate the course presenters ability to convey concepts.



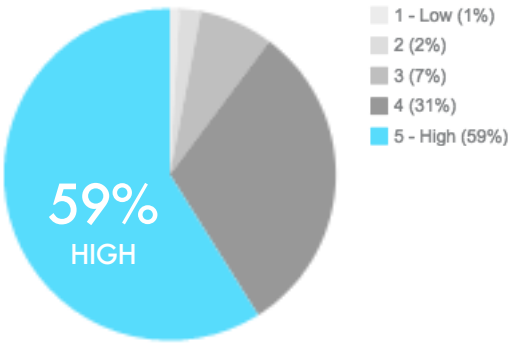
Please rate your learning experience for this course.



To what extent was this professional learning relevant to your role?



How relevant were the course resources?



Is MacICT having an impact on teaching practice?

Results from a survey sent to our distribution list at the end of the 2014-15 year.

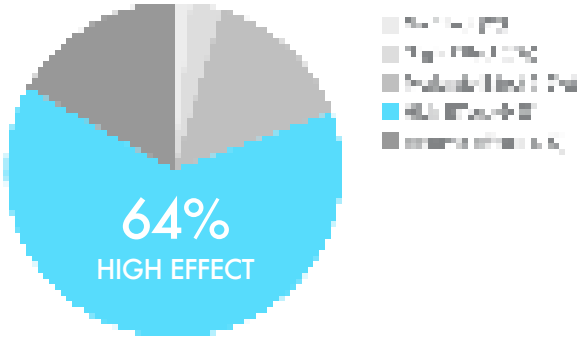
"[MacICT's courses] have been very practical, aimed at the right level, and immediately able to be applied in the classroom."

"I have become more aware of the way ICT can be implemented effortlessly into the current curriculum. I have also seen the increase in student engagement through the introduction of ICT into the mainstream curriculum."

"[The course] gave me lots of ideas to share with colleagues and students. Made me aware of possibilities I had previously not imagined. The course assisted me in developing more confidence and skills to share with my students."

"We've been able to implement $28000 worth of iPads and setup. Also a school wifi system to support it. I could not have done it without the knowledge I gained at MacICT's course"

To what extent has your involvement with MacICT had a positive effect on your teaching and learning?



"MacICT has introduced me to new resources that are reliable, and teacher / student friendly. They have also shown me new progarms that I use use within the classroom to engage my students and further education them in ICT and content in a more productive way.."

"The exposure to new technologies and apps within a pedagogical and student-centred context has enabled a smooth implementation of this new knowledge into my classroom practice with confidence."

"[MacICT] has allowed me to understand how 21st century learners learn and implement different strategies into the classroom after making connections through the educational community."

"I have been able to implement the ICT resources I was introduced to during the course in my programming. I strongly believe there are so many fantastic ICT resources out there, but it is very hard for teachers to find them or stay up to date on the developments. The course I attended gave me a long list of examples I can use in my day to day teaching, wether I have iPads at my disposal, laptops or desktop computers."

"Skills learned and ideas shared at workshops have been integrated into my teaching programs, enriching the learning activities for my students. I have also been inspired to convince our Administration Team to offer a STEM program at our school."

"My role this year at my school involves giving professional development to staff members each week as well as taking GATs students and working with them on technology tasks so my learning at Mac ICT has helped me create and implement programs that could not have operated at the school unless training was undertaken."

"The Professional Learning in a Digital Age course has helped to guide many staff through online learning and collaboration activities to develop these skills and then apply elements of it in the classroom."

PURSUING AN INNOVATIVE RESEARCH AGENDA

Case Studies and Academic Research Projects at MacICT

Macquarie ICT Innovations Centre is a partnership between Macquarie University and the NSW Department of Education and Communities. It is a partnership that focuses upon evidence-based practice and professional learning for teachers and their students. The projects supported by the Centre all explore modern pedagogy employing the latest appropriate technologies and often pre-service teachers are encouraged to work within projects to provide intensive support for teachers learning about new software and systems.

MacICT is committed to undertaking research and development that supports and investigates technologically innovative educational practices. The internationally recognised NMC Horizon Report informs the direction of MacICT's research.

MacICT will concentrate on the development and evaluation of research activities that:

- Are project based, allowing for flexible, student led inquiries
- Promote evidence based practice, exploring emerging pedagogies through an iterative process
- Cast teachers as researchers, encouraging reflective practices
- Build leadership capacity in teachers, supporting them as change makers in their schools

The research focuses on links between the School curriculum, the preparation of teachers who understand the new Australian Curriculum and how this new curriculum requires new pedagogies that assume and subsume the role of technologies. The approach depends on the pedagogy of the discipline in a world where processing discipline knowledge depends on access to and understanding of the enabling technologies. Given the changing choices of teachers and their principals, as part of this implementation process, the dependence on external technology expertise needs to be minimised and instead the focus is on interaction and the networks that facilitate learners' understanding and maximises local control over choice of tools and enabling applications.

Several principles might underpin the choice of projects and a research development strategy that is driven by teacher and student desire to focus on 21st century skill development. Thus it is suggested that some of the framing principles might include:

All projects seek to explore pedagogies that are situated in discipline knowledge.

- Projects should focus on higher order learning outcomes such as analysis, evaluation and creation of responses.
- Projects should explore new research methodologies such as design research, where teachers, students, school leaders together with the researchers design new strategies and collect evidence on their effectiveness.
- Work with whole of school strategy that underpins school decision making and choices for funding, noting particularly, the climate and environment to sharing and deployment of appropriate technologies.
- Projects should foster sustained partnerships between researchers, schools, teachers and school leaders.
- Projects should enmesh tools such as knowledge processes that support the collection, mixing, collaboration, creation and sharing, through smart and mobile tools.
- Projects should involve a sense of fun

MACICT PRIORITY
Persue an Innovative Research Agenda

Directions for 2015-16

Computational Thinking Project

Transmedia Storytelling: Weaving a StoryWorld Web

Project Team: Dr Nerida McCredie and Cathie Howe

What is transmedia storytelling and in what ways could it be used within educational settings for literacy learning? What opportunities might it offer to teachers and their students?

In 2013, the research team at MacICT, Centre Manager Cathie Howe and Research Advisor Nerida McCredie, decided to explore the nature of literacy learning in the digital age. They developed a project for Stage Two teachers and students to investigate the possible worth of transmedia for learning. The project team explored the qualities and characteristics of transmedia, evaluated a wide range of digital design tools and created online Storyworlds to share and evaluate.

The project examined the potential value of transmedia storytelling for literacy learning by investigating the worth of 'Weaving a StoryWorld Web.'

The Weaving a Storyworld Web framework is designed to assist teachers and students to engage in transmedia learning by designing an online, multimodal Storyworld created around a class novel or short story. It is a transmedia storytelling experience positioned with an educational context.

The project particularly focused on the professional learning of the teachers, examining if transmedia story telling is an engaging and effective way to meet the ICT capabilities in the Australian Curriculum: English.

Term 3

St Ives North Public School

North Sydney Demonstration School

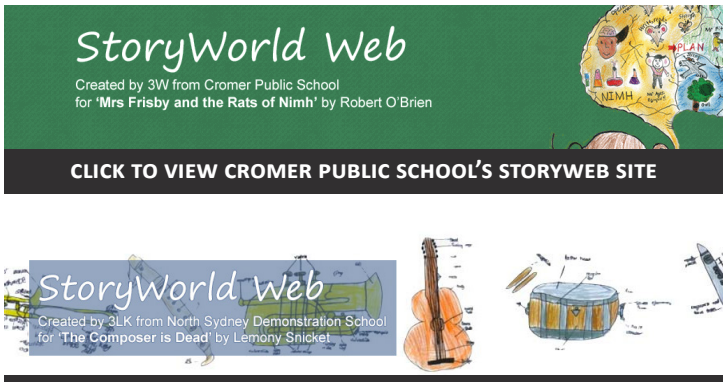
Cromer Public School

Term 4

Willoughby Girls High School

MACICT PRIORITY

Persue an Innovative Research Agenda



WEAVING A STORYWORLD WEB

A MACQUARIE ICT INNOVATIONS CENTRE PROJECT | CATHIE HOWE & DR NERIDA MCCREDIE | 2013

Future Pedagogies Project

Project Team: Michael Stevenson, Cathie Howe, Kerry-Ann O'Sullivan, Lori Lockyer

Current funding from MacICT is $25,000. Will be applying for a funding contribution from MQ.

Future Pedagogies explores how educators develop, employ and evaluate pedagogies to meet the current and future needs of their school communities. The project examines the relationship between pedagogical change and evidence-based practice. Participants apply issues in current research to identify pedagogy-related problems in their school context and develop a strong evidential base to work through solutions and effect meaningful change. The project considers the nature of pedagogical change in the context of the realities contemporary schools face, including the implementation of national teaching standards and curricula, impact of technology and pressures of high stakes testing.

Research questions:

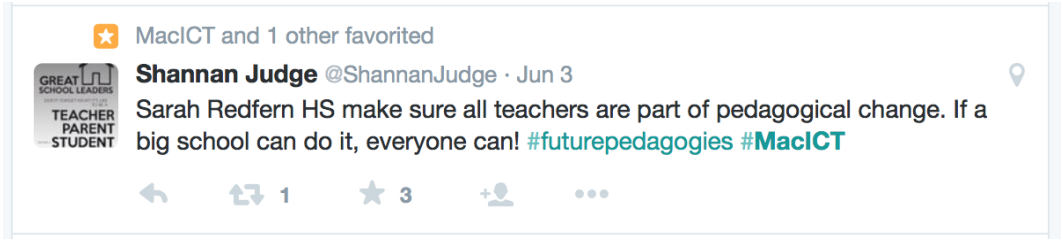
What are the skills that enable teachers to employ pedagogies suited to the specific learners and learning context?

What elements in a common language for pedagogy do schools employ to establish successful learning outcomes?

What are the necessary elements of pedagogical fluency and how can these be developed?

What role can contemporary technologies play in developing pedagogies for current and future learning needs?

MACICT PRIORITY
Persue an Innovative Research Agenda



"There is no one single effective teaching method or strategy. Teachers need to be proficient in many teaching practices and, more importantly, be able to assess their impact on students and adapt their teaching practices to assist students if they are not responding or engaged"

NSW Government, "Great Teaching, Inspired Learning," p. 6

Report prepared by Cathie Howe and Lyrian McGregor.
Layout and design by Lyrian McGregor.

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Public Schools NSW

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